

PRIORITY**TOP SECRET**

1969 JUN 9 15 31Z

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CORONA [REDACTED]

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SUBJECT: MISSION 1051, PHOTOGRAPHIC EVALUATION INTERIM REPORT (PEIR)

REF: A [REDACTED] 2409 10 MAY 1969

B. [REDACTED] 2486 20 MAY 1969

1. NUMERICAL SUMMARY

MISSION NO & DATES: 1051-1, 2-9 MAY 1969

1051-2, 9-18 MAY 1969

LAUNCH DATE & TIME: 2 MAY 1969/0147Z

VEHICLE NUMBER: 1649

CAMERA SYSTEM: J-44

PAN CAMERA NUMBER MASTER S/N 212, FWD LOOKING
SLAVE S/N 213, AFT LOOKING

FILM TYPE: 3404

MISSION 1051-1 S/I NO: D115/148/142

MISSION 1051-2 S/I NO: D122/156/161

RECOVERY REVS:

1051-1 REV 113, 9 MAY 1969/0132Z

1051-2 REV 256, 18 MAY 1969/0045Z

2. CAMERA SETTINGS:

FWD LOOKING SLIT 0.140 FILTER WRITTEN W-21

AFT LOOKING SLIT 0.140 FILTER WRITTEN W-21

3. PERFORMANCE SUMMARY:

MISSION 1051 EXHIBITS EXTREME IMAGE VARIABILITY WITH OVERALL QUALITY OF THE FWD CAMERA BEING POORER THAN AN AVERAGE J-1. THE OVERALL IMAGE QUALITY OF THE AFT LOOKING CAMERA IS SOMEWHAT BETTER THAN THE FORWARD AND EXHIBITS EXAMPLES OF IMAGERY COMPARABLE TO AN AVERAGE J-1 MISSION. IN GENERAL, THE IMAGERY OF BOTH PAN CAMERAS IS SOFT AND LACKS CRISPNESS AND OVERALL EDGE SHARPNESS.

THE PI COMMENT ON SUITABILITY FOR 1051-1 RANGES FROM GOOD TO POOR WITH THE MAJORITY IN THE FAIR TO POOR CATEGORY. THE SUITABILITY OF 1051-2 RANGES FROM GOOD TO POOR WITH THE MAJORITY IN THE FAIR CATEGORY. WEATHER IS CONSIDERED A MAJOR DEGRADING FACTOR, HINDERING THE READOUT.

4. ANOMALIES:

A. ANOMALY: CONDITIONS OF GROSSLY SOFT IMAGERY THAT APPEAR IN APPROXIMATELY THE SAME FORMAT POSITION IN EACH FRAME AT THE SUPPLY END. THIS SOFT IMAGERY IN THE FORWARD CAMERA OCCURED ALONG THE BINARY EDGE AND INCLUDED AN AREA OF APPROXIMATELY 10 TO 15 PERCENT OF THE FORMAT. THE RECURRING AREA IN THE AFT CAMERA WAS LOCATED NEAR THE TIMING TRACK SIDE AND AFFECTED APPROXIMATELY TEN PERCENT OF THE FORMAT. THERE WERE ALSO ISOLATED SOFT SPOTS RANDOMLY LOCATED THROUGHOUT BOTH RECORDS.

CAUSE: FAILURE TO MAINTAIN FILM FLATNESS IN THE FOCAL PLANE. NO SINGLE FACTOR HAS BEEN IDENTIFIED AS THE CAUSE. ALTHOUGH A RELATIONSHIP BETWEEN THE AFT CAMERA SOFT FOCUS IMAGERY AND THE TIMING MARKS WAS PREVIOUSLY REPORTED, NO SPECIFIC CORRELATION IS KNOWN.

ACTION:

1. REVIEW NECESSARY TO CONDUCT DYNAMIC TESTS ON J-46 TAKE-UP. [REDACTED]

2. REVIEW RESULTS OF ALL J-46 TESTS. (MONITOR: [REDACTED])

3. REVIEW J-46 DATA TO ASSURE MAIN PLATE FLATNESS. [REDACTED]

B. ANOMALY: THE FORWARD/TAKE-UP AND THE AFT/SUPPLY HORIZON CAMERAS DISPLAY A VEILED CONDITION DURING THE "A" MISSION. THIS

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GROUP 1
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ANOMALY STARTED DURING PASS D004 FOR THE FORWARD CAMERA AND ENDED DURING PASS D068. THE AFT CAMERA VEILING STARTED DURING PASS D008 AND ENDED DURING PASS D038. THIS CONDITION DID NOT HINDER DATA REDUCTION.

CAUSE: THIS PHENOMENON HAS BEEN OBSERVED ON PREVIOUS MISSIONS. INVESTIGATION THUS FAR HAS FILED TO ESTABLISH A DEFINITE CAUSE.

ACTION: NO ACTION IS RECOMMENDED.

C. ANOMALY: BOTH AFT CAMERA A/O. UNITS FAILED TO OPERATE. FAILURE OCCURRED ON BOTH A.O. UNITS OF THE AFT LOOKING CAMERA DURING FRAMES 29 THROUGH 49 OF PASS D007.

CAUSE: A REVIEW OF THE MATERIAL INDICATED THE PRESENCE OF A NORMAL DATA BLOCK ASSOCIATED WITH EACH OF THESE FRAMES. THIS ISOLATES THE PROBLEM AREA TO THE "ONE-HALF REV" SWITCH. PAST FLIGHT HISTORY HAS INDICATED SIMILAR SHORT TERM FAILURES ASSOCIATED WITH THIS SWITCH. IN ALL PROBABILITY A SMALL PARTICLE OF DIRT OR AN INCORRECT OVERTRAVEL ADJUSTMENT WAS THE CAUSE OF THIS ANOMALY.

ACTION: NONE.

5. CHARACTERISTIC ANOMALIES: THESE ARE PREDICTABLE, RECURRING ANOMALIES CONSIDERED INHERENT IN THE CORONA J-1 SYSTEMS. THESE PRODUCE MINOR DEGRADATION TO THE PHOTOGRAPHY. A SUMMARY OF THESE ANOMALIES IS PRESENTED BELOW. A CONTINUING EFFORT IS MADE TO MINIMIZE THESE ANOMALIES.

A. FOG PATTERNS ON THE FIRST, FOURTH, THE FIFTH FROM LAST, NEXT TO LAST AND LAST FRAMES OF BOTH CAMERAS OF 1051-1 AND 1051-2 ARE VERY LIGHT IN DENSITY, AND DEGRADATION TO THE MATERIAL IS MINOR. THE FOG IS CAUSED BY MINOR LIGHT LEAKS.

B. MINOR BANDING PERPENDICULAR TO THE MAJOR AXIS IS PRESENT AT THE TAKE-UP END OF SOME FRAMES IN BOTH INSTRUMENTS IN 1051-1 AND 1051-2. THE TAKE-UP END OF THE PANORAMIC FORMAT IS ALSO THE START OF PHOTOGRAPHIC SCAN. THEREFORE, VARIATIONS IN THE START-UP ACCELERATION OF THE SCAN ARM PRODUCE THIS BANDING PHENOMENON.

C. MINOR RAIL SCRATCHES ARE PRESENT THROUGHOUT THE MISSION ON BOTH INSTRUMENTS. THESE SCRATCHES ARE OUTSIDE THE PHOTOGRAPHIC FORMAT.

D. DENDRITIC FOG PATTERNS ARE PRESENT ALONG BOTH FILM EDGES INTERMITTENTLY ON THE AFT-LOOKING INSTRUMENT FOR 1051-2.

E. EMULSION SCRATCHES CAUSED BY THE SCAN HEAD ROLLERS OCCUR TO AN AVERAGE EXTENT.

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F. BIASED MINUS DENSITY STREAKS APPROXIMATELY 0.1 INCH WIDE AND FOLLOWING THE TRAVEL OF THE FIELD FLATTENER AFFECTED BOTH CAMERA RECORDS. THE AFT RECORD WAS AFFECTED INTERMITTENTLY THROUGHOUT THE MISSION WHILE ONLY A FEW FORWARD RECORD FORMATS WERE AFFECTED AT THE END OF THE MISSION. THE CONDITION IS CHARACTERISTIC AND ATTRIBUTED TO FOREIGN PARTICLES ON THE FIELD FLATTENER.

G. NUMEROUS FINE MINUS DENSITY LINES PARALLEL TO THE MAJOR AXIS OF THE FILM ARE PRESENT INTERMITTENTLY THROUGHOUT

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THE MISSION AND ARE PROBABLY THE RESULT OF FOREIGN DEPOSITS ON THE FILTER.

H. A SPURIOUS 200 PPS MARKER WAS PRESENT INTERMITTENTLY THROUGHOUT THE MISSION IN THE TIME TRACK OF THE AFT CAMERA. THIS IS CONSIDERED THE RESULT OF A TRANSIENT GENERATED AT "CENTER OF FORMAT OFF" POSITION.

I. A MINUS DENSITY SPOT APPROXIMATELY 0.1 INCH DIAMETER IS PRESENT ON THE AFT MATERIAL. THIS ANOMALY OCCURS EVERY THREE AND ONE-EIGHTH INCHES FROM FRAME 9 OF PASS A001 THROUGH FRAME 20 OF PASS D003. THIS SPOT APPEARS TO BE THE RESULT OF A FOREIGN PARTICLE ON A ROLLER.

T O P S E C R E T

END OF MESSAGE